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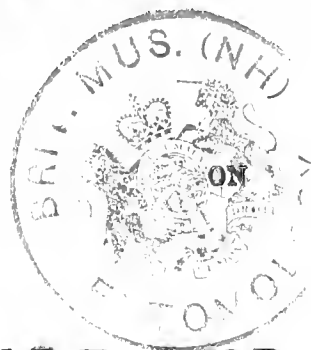
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SEYCHELLES

ANNUAL REPORT



AGRICULTURE AND CROWN LANDS

FOR THE YEAR

1911.

SEYCHELLES.

GOVERNMENT PRINTING OFFICE,—ROYAL STREET, VICTORIA.

1912.

ANNUAL REPORT

ON

AGRICULTURE AND CROWN LANDS

FOR THE YEAR 1911.

I

EXPENDITURE, RECEIPTS, SALE OF PLANTS.

Rents of Crown Lands, exclusive of			
Buildings	...	Rs	16,160.28
Produce from Crown Lands			
and Botanic Station	...	,,	3,530.37
Royalty on Guano...	...	,,	46,133.09
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Total		Rs	65,823.74
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Total Expenditure under Agriculture and Crown Lands	...	Rs	19,278.15
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The principal plants and seeds sold were the following :—

Plants :	4,390	Casuarina equisetifolia.
„	18,850	Sisal.
„	241	Sweet potato cuttings from Antigua.
„	29	Fruit trees.
„	31	Pineapple suckers.
„	400	Ornamental plants.
Seeds :	315,339	Rubber seeds (Hevea Brasiliensis).
„	5,060	Coconuts.
„	760	Palmyrah nuts (Borassus flabelliformis).
„	50	Palm oil seed (Eleis Guineensis).
„	18	Talipot palm (Corypha umbraculifera.)

The principal plants introduced and set out at the Station during the year are the following :—

Metroxylon sagu (true sago tree)

Bambusa aurea

Eucharis grandifolia

Allamanda grandifolia

Kopsea fruticosa

White antigonum

Water hyacinth

Plumbago alba

Pentadesma butyracea

Barleria cristata

Phyllanthus myrtifolius

Croton tiglium

Cassava, 3 varieties from Antigua

Tannias and eddoes, 8 varieties from Antigua

Phaseolus semierecta (green manuring)

Crotolaria incana do

Crotolaria striata do

Crotolaria juncea do

Soy beans

Cow peas

Velvet beans

Sudan grass

} From the United States of America.

Mussænda frondosa (white bracts)

Mussænda sp. (red bracts)

Lagerstroemia (white)

Lagerstroemia (pink)

White lantana

Ipomea horsfallia

Clematis paniculata

Hibiscus, 6 varieties

Aberia gardneri (Ceylon gooseberry)

Asystasia coromandeliana (var)

Wrightia zeylanica

Bougainvillea, 4 varieties

Dracoena, 4 varieties

Bilbergia rosea

Acalypha integrifolia

Calathea ornata regalis

Artocarpus nobilis

Artocarpus rigida

Mangoes from Jaffna, Bombay and Mauritius

Zizyphus jujuba

Carissa caranda

Eugenia Brasiliensis

Strychnos nux vomica

Feronia elephantum

Smilax maculata

Butea frondosa

Triplaris surinamensis

Nephelium lappaceum

Macadamia ternifolia

Berrya amomilla

Kleinhovia hospita

Il ex Paraguensis (Paraguay tea)

Nephelium longana

Achras sapota

Garcinia Xanthochymus

Garcinia Mangostana

Canarium communæ

Bouea macrophylla

Dracoena draco

Coroupita guianensis
Durio Zybethinus
Crysophyllum cainito
Mammea Americana
Camcensia maxima
Diospyros embryopteris
Sandoricum indicum
Sandoricum radiatum

and about 200 more species of striking ornamental plants and creepers. Among the sweet potatoes introduced from Antigua, four varieties, namely Nos 26, 8, 27 and 24, have yielded in 5 months about double the quantity obtained from the local varieties, namely, "patate flamand", "patate 40 jours" and "patate blanc".

The following plants were also set out in the New Forest :—

Capucin (<i>Northea Seychellana</i>)	1,200
Bois de table (<i>Heritiera littoralis</i>)	275
Hevea Rubber	453
<i>Parkia Roxburghii</i>	310
Bois noir (<i>Albizzia Lebbek</i>)	25
Takamaka (<i>Calophyllum inophyllum</i>)	75
Calice du Pape (<i>Tecoma leucoxylon</i>)	100
Agati (<i>Adenanthera pavonina</i>)	10
Sangdragon (<i>Pterocarpus indicus</i>)	175
<i>Albizzia moluccana</i>	250
<i>Casuarina equisetifolia</i>	2,159
<i>Cocoplum (Chrysobolanus icaco)</i>	700
Fruit trees	55
<i>Stevensonsonia grandifolia</i>	500
Bois marais (<i>Uapaca Griffithii</i>)	250
<i>Gliricidia maculata</i>	250
<i>Azadarichta indica</i>	305
Palmyrah palm	50
Talipot palm (<i>Corypha umbraculifera</i>)	25
Oil palm (<i>Elaeis guineensis</i>)	25
<i>Melia Dubia</i>	100

The following lines were followed during the year for the working of the New Forest: (1) Maintenance and protection of the existing native forests. Nearly the whole of the labour force is absorbed by the patrolling of about 2000 acres of land. (2) The open spaces which are occupied by the bracken fern (*gleichenia dichotoma*) are being gradually cleared and turned into forest land. These ferns are mostly found on abandoned and worn out cassava plantations, and owing to the thick covering of their roots, prevent trees from spreading by natural reproduction. Where the land is poor, the three following plants have been found to succeed better than *Casuarina*, which was planted exclusively last year:

- (1) *Gliricidia maculata* (cuttings).
- (2) *Tecoma leucoxylon* (calice du Pape).
- (3) *Cocoplum (chrysobolanus icaco)*.

These three small trees are extremely hardy, and the two last mentioned become established in a given locality in a short time.

The use of *cocoplum* is besides to be recommended because it stops erosion whilst not preventing the seeds of other trees from germinating underneath. It seems even possible to reafforest mountain slopes and gorges

by combining cocoplum with palm oil : these two plants being easily self sown and palms being quite at home in these localities where 75 o/o of the indigenous plants belong to the palm family.

(3) In well sheltered places indigenous species of some importance such as Natte (*Imbricaria Seychellarum* and *petiolaris*), Gayac (*Afzelia bijuga*), Capucin (*Northea Seychellarum*), Bois Marais (*Uapaca Griffithii*), Bois-de-fer (*Vateria Seychellarum*) are planted out.

A part of the Terrain Perard is also devoted to the creation of an orchard in which already about 20 different species of fruit trees have been set out, namely :

Garcinia Mangostana
Garcinia Xanthochymus
 Mango Jaffna
 do Bombay (grafted)
 do Mauritius (Collard)
 do do (Goa L'Etang)
 do do (Aristide)
 do Parrot (Ceylon)
Sorindeia Madagascariensis (Small mango)
Sapotille (*Glycosmis citrifolia*)
Stenocalyx Brasiliensis (Brazil cherry)
Rambutan (*Nephelium lappaceum*)
Durian (*Durio Zybethinus*)
Achras sapota (*Sapodilla plum*)
Sandoricum indicum
 do radiatum
Garcinia Cambogia
Bertholletia excelsa (Brazil nut)
Artocarpus nobilis
Artocarpus rigida
Aberia Gardneri (Ceylon gooseberry)
Canarium commune (Java almond)
Madacamia ternifolia (Queensland nut)
Palmyrah palm (*Borassus flabelliformis*)
Nephelium longana
Feronia elephantum (Wood apple)
Chrysophyllum cainito (Star apple).

Most of these plants are set out as an experimental planting of economically desirable trees new to the Colony.

METEOROLOGICAL OBSERVATIONS.

The following tabulated statement shows that 1911 was the driest year on record (1897-1911) with a rainfall of 77·21 inches. These observations were taken from January to December, but the greatest monthly rainfall occurring either in December or in January, it often happens that one year is drier than the other owing to the heavy rains beginning in January instead of December. For this reason the second tabulated returns show the rainfall from June to June, and clearly point out that the two last years were the driest for the last decade.

Rainfall from January to December 1897 to 1912.

Months	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
January	...	24.01	17.81	18.73	12.53	15.44	17.84	29.52	13.40	20.61	20.13	3.06	18.70	13.02	11.15	29.69
February	...	18.21	0.35	13.20	6.00	14.72	15.12	14.48	6.03	8.85	16.98	19.75	16.65	6.45	15.27	18.70
March	...	14.11	11.61	9.42	14.00	9.87	14.61	0.56	3.47	12.72	1.99	7.52	1.39	10.59	4.93	3.17
April	...	1.21	3.35	9.47	9.66	1.76	16.70	3.97	4.22	14.10	5.05	10.52	10.33	10.93	3.83	...
May	...	6.60	5.19	4.20	5.27	3.96	16.85	0.19	9.54	5.05	4.92	6.37	2.97	7.61	4.18	...
June	11.57	3.80	3.53	2.08	4.52	0.76	20.01	0.12	0.89	4.42	0.55	4.52	1.43	1.28	1.94	...
July	4.95	0.72	3.39	2.30	4.01	0.92	3.29	0.32	0.62	2.69	3.61	2.54	1.43	1.66	1.01	...
August	1.28	3.12	3.41	1.12	1.33	4.11	0.70	4.75	6.25	0.88	1.35	1.06	0.33	1.51	0.81	...
September	2.20	6.71	11.31	3.76	12.12	2.51	3.90	7.13	12.92	0.96	5.99	6.25	1.62	2.66	7.00	...
October	5.20	3.37	7.92	6.33	4.88	8.60	1.89	2.82	0.48	4.72	4.19	4.06	5.63	0.03	7.00	...
November	5.26	3.62	6.12	19.94	8.22	10.88	11.89	24.03	5.58	7.63	3.56	4.73	10.46	9.00	14.15	...
December	18.49	10.70	14.43	19.17	9.72	14.63	9.52	18.94	25.51	13.49	14.11	10.88	9.01	18.67	5.94	...
Total	48.95	96.18	88.42	119.72	92.26	88.16	94.82	106.83	88.91	96.12	82.43	81.26	79.95	83.41	77.21	51.58

Rainfall from June to June.

Months	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
June	11.57	3.80	3.53	2.08	4.52	0.76	20.01	0.12	0.89	4.42	0.55	4.52	1.43	1.28	1.94
July	4.95	0.72	3.39	2.30	4.01	0.92	3.79	0.32	0.62	2.69	3.61	2.54	1.43	1.66	1.01
August	1.28	3.12	3.41	1.12	1.33	4.11	0.70	4.75	6.25	0.88	1.35	1.06	0.33	1.51	0.81
September	2.20	6.71	11.31	3.76	12.12	2.51	3.90	7.13	12.92	0.96	5.99	6.25	1.62	2.66	7.00
October	5.20	3.37	7.92	6.33	4.88	8.60	1.89	2.82	0.48	4.72	4.19	4.06	5.63	0.03	7.00
November	5.26	3.62	6.12	19.94	8.22	10.88	11.89	24.03	5.58	7.63	3.56	4.73	10.46	9.00	14.15
December	18.49	10.70	14.43	19.17	9.72	14.63	9.52	18.94	25.51	13.49	14.11	10.88	9.01	18.67	5.94
January	24.01	17.81	18.73	12.53	15.44	17.84	29.52	13.40	20.61	20.13	3.06	18.70	13.02	11.15	29.69
February	18.21	0.35	13.20	6.00	14.72	15.12	14.61	0.56	3.47	12.72	1.99	7.52	1.39	10.59	4.93
March	14.11	11.61	9.42	14.00	9.87	1.76	16.70	3.97	4.22	14.10	5.05	10.52	10.33	10.93	3.83
April	1.21	3.35	9.47	9.66	9.66	14.61	0.56	4.22	14.10	5.05	10.52	10.33	10.93	3.83	...
May	6.60	5.19	4.20	5.27	3.96	16.85	0.19	9.54	5.05	4.92	6.37	2.97	7.61	4.18	...
Total	94.09	70.35	105.23	102.16	90.55	123.53	100.46	94.77	113.58	83.86	80.58	84.08	78.51	74.17	89.43

The Coconut industries.

The following nuts were gathered in 1911 :—

	1905	1906	1907	1908	1909	1910	1911
Nuts exported an naturel ...	551,135	381,954	601,560	479,849	91,907	129,159	445,795
„ converted into Oil ...	9,915,496	7,762,080	1,786,160	4,285,278	2,016,040	394,960	209,448
„ „ Coprah ...	2,077,019	5,695,860	13,655,683	11,463,438	16,258,891	18,597,215	18,181,015
„ „ Soap ...	2,451,099	1,243,571	1,672,006	2,969,246	1,846,040	969,542	408,969
„ consumed locally ..	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000
Total ...	18,946,531	19,043,465	21,713,708	23,197,781	24,213,578	24,081,867	23,195,227

The reduction of nearly a million nuts is due to the shortage in the rainfall in 1911 which is the driest year ever recorded.

I do not think that the new clearings planted in coconuts have as yet come into full bearing having been made after 1905.

VANILLA INDUSTRY.

The crop of vanilla, which is also dependent on the rainfall, was reduced to a little over 12 tons, valued at Rs 223,199.

This is one of the shortest crops on record since 1895, when the crop only reached $4\frac{1}{2}$ tons.

The vines had suffered greatly from the drought which prevailed for the last 7 years, and in many localities the shortage of rain had put a stop to the culture of this plant.

However, at time of writing (April 1912), the vines, under the influence of the abundant rains which fell since November last, have started new growth even in those localities where this profitable industry had to be abandoned. On the contrary, a few prominent planters took up the culture of this orchid on modern lines and started manuring it, principally with lime, this salt having been found to play an important part in the food of vanilla in the experimental plantations at Capucin, as shown in my reports for 1908 and 1909. The process is to create beds in which vanilla is planted on *jatropha curcas* (pignon d'Inde) props after a thorough drainage and ploughing of the soil. Grass removed from the field is cut and laid to dry for a week or two and then heaped up over the bed, each new layer of dry weeds being followed by a sprinkling of lime (2 lbs per vine). Of course, such an application of lime causes the dry weeds to decompose more quickly, and this salt, combining with humus, forms an excellent medium for the roots of the vanilla vines. But this method of manuring is not a complete one, and I strongly advise planters to supplement the liming of their vanilla beds with a sprinkling of rock guano from the Outlying Islands, which contains nitrogen, a little potash, phosphates, magnesia, &c., in a more or less soluble form, because it is far better to put all the food elements at the disposal of the orchid and not to count too much on the action of lime alone, which is effective only for a short time. I also recommend green manures being cultivated (*tephrosia*, *crotolaria*, &c) and used in the same way as the dry weeds in order to give more nitrogen to the soil in which vanilla is planted. Other weeds have not the same property of fixing atmospheric nitrogen. Ashes, specially from coconut husks, which contain 40 o/o of potash, should also be used to supplement the potash obtained from the guano, but ashes should never be used fresh as they are a little caustic in that state. When allowed to weather for about a fortnight or more, they are very beneficial.

THE RUBBER INDUSTRY.

	Trees grown 1903-1910	Plants set out in 1911
Victoria	8,968	1,000
Bel Air & Sans-Souci	12,709	...
Au Trou	3,330	2,548
Anse Etoile	52	...
Cascade	5,550	5,663
Anse Boileau & Barbarons	8,030	16,610
Grand'Anse & Audibert	1,000	7,000
South Mahé	9,150	8,300
La Misère & Central Mahé	2,000	2,300
Port Glaud	3,500	2,541
West Mahé & Niol	500	500
Silhouette	8,900	5,000
North Island	100	...
Praslin	8,796	10,500
	<u>72,535</u>	<u>61,932</u>

This total number of trees (134,467) shows that nearly 800 acres of ground are occupied by Para Rubber (170 to the acre). For the first time this article appears on the list of exports and figures for 132 kilos worth Rs 800 (declared value). Three estates, namely, Seychelles Rubber Cy., Mahé; Côte d'Or, Praslin, and White House, Victoria, have started tapping with satisfactory results both with regard to yield and market value of biscuits which were reported to be equal to Ceylon Rubber. Tapping will be started in 1912 on two other large estates possessing 25,000 trees at least, of which one quarter have reached a tappable size.

A remarkable feature of the plantations made in 1911 is that the plants were practically all issued from local seeds, and that in one year quite as many plants have been set out as the number of those obtained from abroad for the last eight years. This shows that the acreage of rubber can be doubled every year.

ESSENTIAL OILS INDUSTRY.

The quantity of cinnamon bark exported amounted to 943,514 kilos, worth Rs 68,363.55.

That of essential oil was the following :—

	Litres	Total	Rs cts	Total Rs cts
Cinnamon leaves	18	213	54.00	346.00
	21.5		64.50	
	164.5		200.50	
	9		27.00	
Clove leaves	20	389.5	60.00	1134.50
	160.5		508.50	
	206.5		258.50	
	2.5		7.50	
Lemon grass	1	130	3.00	561.00
	1.5		4.00	
	127		552.00	
	0.5		1.50	
Bigarade leaves		1		3.00
Clove stem		12		36.00
Clove		90		500.00
Grand Total ...		835.5	litres	2,580.50

The Cochinlemon grass (*andropogon flexuosus*) has been introduced this year from South India. It produces, according to Professor Dunstan, a better oil, with a higher citral content, than the ordinary lemon grass (*andropogon citratus*).

SCALE INSECTS.

Great relief was experienced this year on finding after the advent of the wet season, that natural parasites were keeping scale insects under control. The artificial methods of control, such as spraying &c., were too expensive to be adopted on a large scale, and in the meantime the scale insects have been gaining ground all over the country. The periods of violent attacks by scales is over in the more infested places, and it is to be hoped, now that the controlling parasites are in the ascendant, that the natural means of combating scales will be adopted at once in other places. From 1904 to 1911 the periods of drought favoured the development of scales, and the first wet season we are having for the last seven years is sufficient to cause the natural parasites to appear.

The green scale (*Lecanium viride*) is attacked by a white fungus on coffee and funtumia rubber; the black scale (*Lecanium nigrum*) on Hevea rubber by a reddish brown fungus (a species of *hypocrella* according to Petch); the star scale (*Vinsonia stellifera*) on gutta percha by a greyish white fungus; the mealy bug (*Icerya Seychellarum*) on Lovi Lovi (*Flacourtia inermis*) by a red headed fungus.

These fungoid parasites have been found above 800 feet elevation, although the white fungus on *Lecanium viride* and the reddish brown fungus on *Lecanium nigrum* are present here and there in the low country. No time should be lost in propagating them all over the Archipelago. This is being done already by one or two planters by tying leaves and twigs infected with fungi to other trees attacked by scale insects which are not parasitised.

FISHERIES.

The exports from the Outlying Islands amounted to :—

Tortoise shell	1,165 kilos
Salted Fish	7,895 „
Calipee	1,892 „
Trepang	797 „
Turtle bones	150,000 „
Salted Turtle	5 casks
Shark oil	137 litres (samples)
Turtle oil	158 „ (samples)
Green Turtle shell	645 kilos

The industry of raising carets shows increasing prospects of success. A park of forty acres was built this year at Curieuse by Mr Chenard, in which it is proposed to rear 1,000 carets. Last year several parks were established at Alphonse Island by the Mahé Syndicate, and the experience gained by this Company will serve as a guide to Mr Chenard, who is working under less favourable conditions.

The quantity of fish required (any flesh will do as a substitute: rabbit, turtle, &c.) is pretty high about 2 lbs being necessary per diem for each caret over two years. The number of carets raised up to date shows that 50 o/o die every year from the first to the fourth

year, after which time the larger animals die only from accident. It is safe to count therefore on 10 o/o of the carets raised to bring them to a commercial size (24 inches) at the end of the 7th or 8th year. At Alphonse there are probably a lot of sea organisms (most jelly fish) which Mr Chenard at Curieuse should try to grow artificially, they being scarcer on the Mahé bank. He should also destroy, within the park, all predatory fish, and with a judicious selection, he should raise at the same time young fish for the feeding of the carets.

It would be very expensive to depend entirely on fish caught at a distance from Curieuse, but it is very likely that the same food serves for both carets and fish, and that therefore secondary enclosures should be created to avoid undue competition.

P. R. DUPONT,
Curator,
Botanic Station and Crown Lands,
Seychelles.

30th April, 1912.
